

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE

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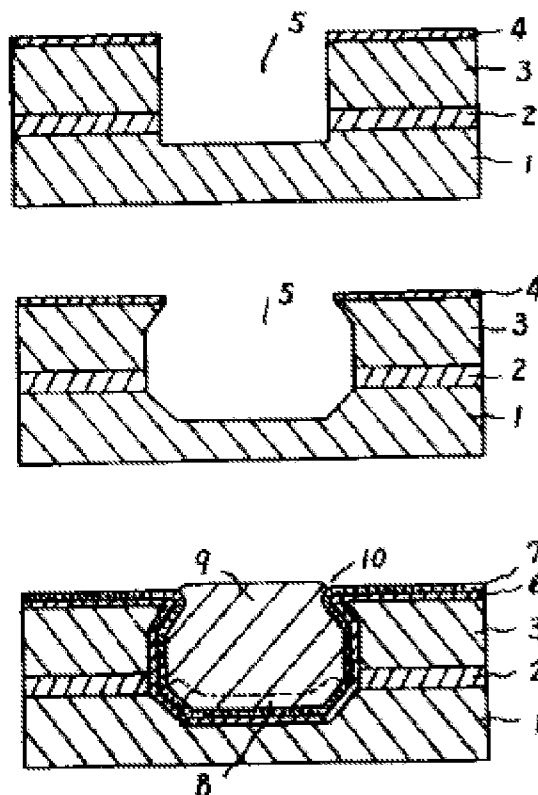
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Abstract of JP59145538

PURPOSE:To unnecessitate the eave of an Si₃N₄ film and to enable to prevent the depression of polycrystalline Si located at the end part of a groove by a method wherein an etching is performed in inverted taper form on the Si located at the upper part of the groove.

CONSTITUTION:An Si epitaxial layer 3 and an SiO₂ film 4 are formed on the Si substrate 1 provided on a collector buried layer 2, and after a patterning has been performed on the SiO₂ film 4, a vertical groove 5 is formed by performing an etching of reactive sputtering method using the SiO₂ film 4 as a mask. Then, an inverted taper formed groove is formed by performing an etching using an alkaline anisotropic etching solution. Impurities having the conductivity reverse to that of the buried layer 2 are introduced into the bottom face of the groove, and after an SiO₂ film 6 and an Si₃N₄ film 7 have been formed, a polycrystalline Si 8 is left in the groove only, and a polycrystalline Si 9 is selectively grown using said polycrystalline Si 8 as a seed. After the surface of the polycrystalline Si 9 has been oxidized, the Si₃N₄ 7 on the surface of an active layer is removed, the surface is stabilized by forming an Si₃N₄ film on the whole surface again, and a transistor is formed on the active layer 3.



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